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Patents Act 1990

PATENT REQUEST: STANDARD PATENT/PATENT OF ADDITION

We, being the persons identified below as the Applicant, request the grant of a patent to the person identified below as the Nominated Person, for an invention described in the accompanying standard complete specification.

Full application details follow.

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and

MANTOVA MARKETING PTY. LTD., A.C.N. 002 251 185 of 97
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[54] Invention Title: FLUORESCENT LIGHT FITTING

[72] Names of actual inventors: John Henry ORFORD and
Kevin Phillip BLUM

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DATED this second day of March 1994

ORFORD PTY. LTD. and MANTOVA MARKETING PTY. LTD.

By:

Registered Patent Attorney

TO:

THE COMMISSIONER OF PATENTS
AUSTRALIA

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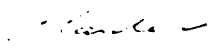
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NOTICE OF ENTITLEMENT

We, ORFORD PTY. LTD., A.C.N. 009 790 265 of 256 Herries Street, Toowoomba, Queensland, 4350, Australia and MANTOVA MARKETING PTY. LTD., A.C.N. 002 251 185 of 97 Warren Road, Smithfield, New South Wales, 2164, Australia being the applicant in respect of the attached application state the following:-

1. The persons nominated for the grant of the patent have entitlement from the actual inventors by assignment.

ORFORD PTY. LTD. and MANTOVA MARKETING PTY. LTD.
By their Patent Attorneys
CULLEN & CO.


CLAUDE ANESE

Date: 2 March, 1994

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FLUORESCENT LIGHT FITTING

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(56) Prior Art Documents
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(57) Claim

1. A fitting for a fluorescent light comprising a body connected to an end of a flexible electrical cable, the body having a cavity containing terminals therein for electrical connection to terminals at one end of a fluorescent light tube, characterised in that the body has mounting means thereon to permit the body to be removably mounted to a support structure.

10. A fitting for a fluorescent light comprising a moulded body of plastics material connected to an end of a flexible electrical cable, the body having a socket therein dimensioned to receive one end of a fluorescent tube, the socket having terminals therein for electrical connection to terminals on said one end of the fluorescent tube, said body further having

an integrally moulded stud member for removably mounting the body to a support, and

a cylindrical surface surrounding the socket and adapted to receive one end of a protective tubular member such that the tubular member is supported in a position substantially coaxial with the fluorescent tube and spaced a small radial distance therefrom.

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**COMPLETE SPECIFICATION
FOR A STANDARD PATENT**

Name of Applicants:

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Invention Title:

FLUORESCENT LIGHT FITTING

The following statement is a full description of this invention,
including the best method of performing it known to us:

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THIS INVENTION relates to a fluorescent light fitting. In particular, the invention is directed to a fluorescent light fitting having means for mounting the light, as well as means for providing a protective cover for the light.

Fluorescent light assemblies typically comprise one or more fluorescent tubes, each tube having its ends mounted in respective light fittings which contain contact terminals connected to a voltage supply. The light fittings are usually of standard design.

The known fluorescent light fittings have several disadvantages. For example, conventional fluorescent light fittings are usually fixed to a supporting structure and are not easily relocatable. Secondly, conventional fluorescent light fittings protrude outwardly from the supporting structure in order that the fluorescent tube is spaced therefrom. However, this configuration hinders the mounting of the fluorescent tube in confined spaces, such as inside display cabinets.

Thirdly, conventional light fittings do not have any provision for supporting a protective cover over the fluorescent light tube. Normally, a separate fitting is required to mount a protective cover.

Fourthly, conventional light fittings are of an open design with exposed terminals (to allow easy insertion of the fluorescent light tube). However, this open design makes the light fitting susceptible to moisture and hence rusting, particularly in humid environments such as inside refrigerated display cabinets.

It is an object of the present invention to provide an improved fluorescent light fitting which overcomes or ameliorates the abovedescribed disadvantages, or which at least provides the consumer with a useful choice.

It is a preferred object of this invention to provide an improved light fluorescent light fitting

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suitable for use in refrigerated display cabinets.

In one broad form, the present invention provides a fitting for a fluorescent light comprising a body connected to an end of a flexible electrical cable, the body having a cavity containing terminals therein for electrical connection to terminals at one end of a fluorescent light tube, characterised in that the body has mounting means thereon to permit the body to be removably mounted to a support structure.

The body is typically moulded from plastics material, and the mounting means comprises a stud formed integrally with the body. The stud is preferably in the shape of a stem with an enlarged head, i.e. a press stud.

The support structure suitably includes a plate having a hole dimensioned to receive the stud in a snap fit. Alternatively, the plate may include an open-ended slot into which the stud can be dropped. The fitting can therefore be mounted quickly and simply to the support plate.

The stud on the light fitting also enables the fitting to be mounted close to the support structure in confined spaces.

In the preferred embodiment, the terminals of the fitting are located at the base of the cavity. The cavity is designed to receive the end of the fluorescent tube in a close fit, with suitable tolerance. A cylindrical portion around the cavity serves to support one end of a protective tube surrounding the fluorescent tube. In other words, the fitting not only supports one end of the fluorescent tube, but also supports a protective tube concentrically with the fluorescent tube and spaced a small distance around the fluorescent tube. The fluorescent tube can be placed close to the support structure as it is protected by the surrounding tube.

In order that the invention may be more fully understood and put into practice, a preferred embodiment thereof will now be described by way of example, with reference to the accompanying drawings in which:



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Fig. 1 is a partly sectioned elevational view

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of a fluorescent light fitting according to one embodiment of the invention;

Fig. 2 illustrates a support plate to which the light fitting of Fig. 1 may be connected;

5 Fig. 3 illustrates an alternative support plate to which the light fitting of Fig. 1 may be connected; and

10 Fig. 4 is an elevational view of the light fitting of Fig. 1 connected to each end of a fluorescent tube.

As shown in Fig. 1, the fluorescent light fitting 10 comprises a body 11 which is typically made of moulded plastics material. The plastics material preferably is resiliently flexible to a small degree. 15 The body 11 houses two female contact terminals 12 adapted to receive the male terminals 13 of a standard 25mm diameter fluorescent tube 14. However, it will be apparent to those skilled in the art that the fitting can be manufactured to suit fluorescent tubes of other sizes.

20 The female contact terminals 12 are typically metal tubes recessed into the plastics material of body 11. The terminals 12 are connected to respective wires 16 which extend through the plastics body 11 into a flexible electrical cord 17. The electrical components 25 are therefore protected by the plastics material in which they are encased.

The terminals 12 are recessed. Namely, they are located in the base of a cavity 15 formed in a tubular portion 18 of body 11. Due to their recessed position, the terminals 12 are less susceptible to 30 contamination by dust, dirt or moisture.

The tubular portion 18 of body 11 has a frusto-conical outer surface 19 at its open end, leading to a cylindrical ring portion 20. An annular collar 21 is 35 located behind the cylindrical ring portion 20 and is formed integrally therewith.

In use, a protective tubular cover 22 is located around the fluorescent tube 14. The protective

cover 22 is typically a length of transparent plastic tube which protects the fluorescent tube without substantial loss of illumination. The cover 22 slides over the frusto-conical surface 19 onto the cylindrical ring 20 where it is held in an interference or friction fit. The collar 21 limits the depth of engagement between the tubular portion 18 and the protective cover 22.

Since the cylindrical ring portion 20 is fixed relative to the body 11, it automatically maintains the cover 22 in a fixed spacial relationship to the fluorescent tube 14 when the latter is connected to the fitting 10. That is, the cover 22 is maintained concentrically with fluorescent tube 14 and spaced a small distance around the tube.

The body 11 also includes means for mounting the body to a support structure. The mounting means is preferably in the form of a press stud comprising a stem with an enlarged head. In the illustrated embodiment, the stud 23 is provided with a generally arrow-shaped head. However, other stud configurations can be used, such as a mushroom capped stud, a T-section stud or a stem with an enlarged knob at its end.

Typically, the stud 23 is formed integrally with the body 11. The stud 23 enables the light fitting 10 to be mounted quickly and simply to a support plate in a "snap fit" connection.

As shown in Fig. 2, the support plate 24 may comprise a sheetmetal plate (or other suitable material) having an aperture 25 therein. The size of the aperture 25 is dimensioned to be slightly less than the widest diameter of the head of stud 23. In this manner, the head of stud 23 can be pushed through the aperture 25 such that after squeezing through the aperture, the head locates behind the plate 24 and locks the light fitting 10 to the support plate. Screw holes are suitably provided on the support plate 24 to enable it to be screwed to a supporting structure. The support plate 24

is economic to manufacture, and easily fixed to a supporting structure.

In an alternative mounting arrangement, illustrated in Fig. 3, a mounting plate 26 is provided with an open-ended slot 27. The stud 23 can be simply dropped into the slot 27 such that the enlarged head of the stud is on the opposite side of the support plate from the body 11, and therefore retains the light fitting 10 connected to the plate 26.

In yet another mounting arrangement, the stud 23 can be simply inserted, in an interference or snap fit, into a hole bored or otherwise formed in the supporting structure.

In use, a fitting 10 is connected to each end of a fluorescent tube 14. A protective cover 22 can also be placed around the fluorescent tube 14, the ends of protective cover 22 being supported by the cylindrical portion 20 on the respective fittings 10, as illustrated in Fig. 4. In this manner, the protective cover 22 is held firmly in spaced relationship around the fluorescent tube 14.

The end fittings 10 can then be mounted to respective support plates. For example, one end may be snap fitted in a support plate 24. The light assembly can then pivot about that connection such that the stud on the other light fitting locates in the slot in the other support plate 26, as shown in Fig. 4. In this manner, the tube 14 can be changed without having to disconnect the first stud from support plate 24.

However, it will be apparent that other mounting arrangements can be used.

The fitting 10 described above is particularly suitable for mounting fluorescent lights in refrigerated display cabinets and other confined spaces since (i) the fittings are compact and enable the fluorescent tube to be placed close to the support structure, (ii) the electrical terminals are recessed within the fitting housing and thereby protected from moisture and other

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contaminants, (iii) the fittings are able to be mounted quickly, and (iv) the mounting positions of the fittings can be varied easily. One preferred mounting position is at the front of the display cabinet such that the contents are illuminated from the front.

5 The foregoing describes only one embodiment of the invention, and modifications which are obvious to those skilled in the art may be made thereto without departing from the scope of the invention as defined in
10 the following claims.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A fitting for a fluorescent light comprising a body connected to an end of a flexible electrical cable, the body having a cavity containing terminals therein for electrical connection to terminals at one end of a fluorescent light tube, characterised in that the body has mounting means thereon to permit the body to be removably mounted to a support structure.
2. A fitting as claimed in claim 1, wherein the mounting means comprises a stud member.
3. A fitting as claimed in claim 2, wherein the body is formed of plastics material and the stud is formed integrally therewith, the stud comprising a stem having an enlarged head thereon.
4. A fitting as claimed in claim 2 or 3, wherein the support structure includes a plate having a hole therein dimensioned to receive the stud member in a snap fit.
5. A fitting as claimed in claim 2 or 3, wherein the support structure includes a plate having an open ended slot adapted to receive the stud member therein.
6. A fitting as claimed in any preceding claim, wherein the cavity is shaped and dimensioned to receive the end of the fluorescent light tube, and further wherein the terminals are located at the base of the cavity.
7. A fitting as claimed in any preceding claim, further comprising a cylindrical surface portion around the cavity, the cylindrical portion being adapted to receive one end of a protective tubular member in a friction fit.
8. A fitting as claimed in claim 7, further comprising a collar portion around the cavity and adjacent the cylindrical portion, the collar portion providing an abutment for the end of the protective tubular member.
9. A fitting as claimed in claim 7 or 8, further comprising a frusto-conical surface portion adjacent the



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cylindrical portion for insertion in the end of the protective tubular member.

10. A fitting for a fluorescent light comprising a moulded body of plastics material connected to an end of a flexible electrical cable, the body having a socket therein dimensioned to receive one end of a fluorescent tube, the socket having terminals therein for electrical connection to terminals on said one end of the fluorescent tube, said body further having

10 an integrally moulded stud member for removably mounting the body to a support, and

a cylindrical surface surrounding the socket and adapted to receive one end of a protective tubular member such that the tubular member is supported in a position substantially coaxial with the fluorescent tube and spaced a small radial distance therefrom.

11. A fluorescent light fitting substantially as hereinbefore described with reference to the accompanying drawings.

20 DATED this twenty-fifth day of October 1994
ORFORD PTY. LTD. and MANTOVA MARKETING PTY. LTD.

By their Patent Attorneys

CULLEN & CO.

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ABSTRACT

A light fitting (10) for a fluorescent light (14) comprises a moulded plastics body (11) having a cavity (15) adapted to receive one end of the fluorescent tube (14). A cylindrical portion (20) around the cavity (15) supports a protective plastic tube (22) in spaced relationship to the fluorescent tube (14). The body (11) also has an integrally moulded press stud (23) for mounting the fitting (10) to a support plate (24, 26).

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Fig. 1.

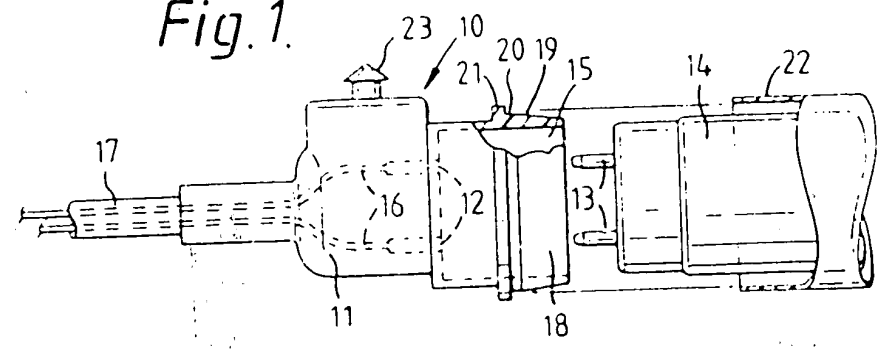


Fig. 2.

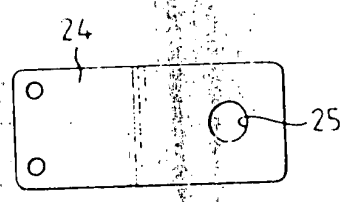


Fig. 3.

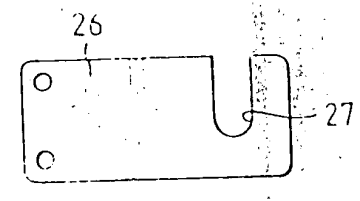
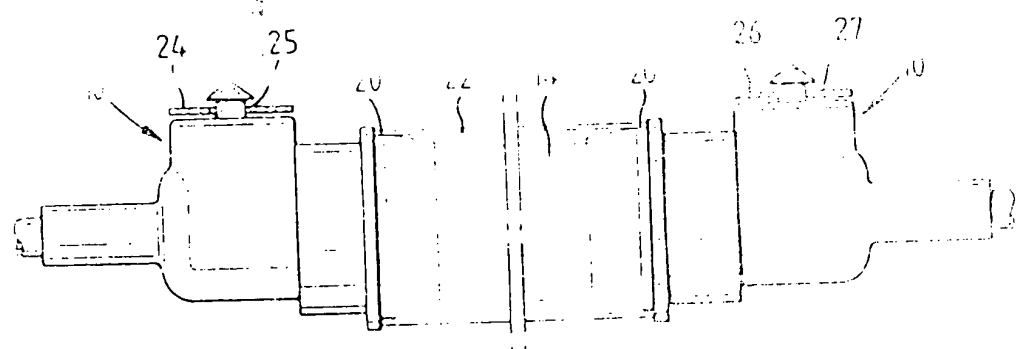


Fig. 4.



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